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NEW AND NOTEWORTHY WESTERN PLANTS. II.

A. D. E. ELMER.

IN the spring and summer of 1902, while engaged in a collecting trip in western Santa Barbara, eastern Ventura, and portion of northeastern Los Angeles counties of California, a number of noteworthy plants were collected as well as new species discovered. On the train from Stanford University to Santa Barbara, where my headquarters were made, I was impressed with the surroundings of Surf as having peculiar physical characters. Having no time to examine the vegetation then, I observed nevertheless a palmlike bush with large golden yellow flowers which I did not notice farther south. Curious to know this plant, I made a side trip to Surf in May, and found its local sand-dune flora the most interesting of all the vegetation in the counties visited. Surf is near the coast and has a stretch of sand dunes a few miles in length and a half mile in width. The breakers are active most of the year, and the winds at certain seasons are continuous and strong; at such times the sands are shifting almost knee-deep. The temperature is always moderately cool. This place is one of the few points along our coast possessing more striking peculiarities than the ordinary sea beaches. It is a place where the oceanic influences are predominant. One can imagine similar conditions on the Santa Barbara Islands off the mainland of southern California. It is my conviction that if a critical study were made, comparing the island flora with that of the mainland such as we have at Surf, a striking similarity would be discovered. Of the following species, all are described as new excepting the first four, and the first seven were collected in the vicinity of Surf. Some of these seven have already been reported from the islands, and the others may be assumed to belong to the island flora.

DITHYREA CALIFORNICA Harv.—This peculiar crucifer I collected on the sand hills at Surf, and it was collected again in the Mohave desert at Lancaster, Los Angeles county, California. It seems to extend from the coast of southern California northeastward through the Mohave desert to Nevada. So far as I am aware, Surf is the most northern limit of its distribution along the coast, and it may be expected on the Santa Barbara Islands.

MESEMBRIANTHEMUM CRYSTALLINUM Linn.—This beautiful ice plant seems to love halophytic conditions along drifting sand beaches continually swept over by cool winds from the ocean, though it has also been reported from the Mohave desert by Mrs. BRANDEGEE, according to PARISH. Along this coast its range extends from Surf, Santa Barbara county, California, southward through Lower California, and on the islands off the coast. It is an old world species, indigenous to the coast of Africa.

LEPTOSYNE GIGANTEA Kellg.—This is the plant observed from the moving train as a palmlike bush with large golden yellow flowers. Aside from the original publication, the *Botany of California* reports it from Guadalupe Island and San Miguel of the Santa Barbara Islands. The *Synoptical Flora* gives it from the mountains near Santa Barbara and San Miguel, and the islands off the coast. This citation is rather obscure, and it is to be doubted whether this plant was discovered on the mainland as early as that date. In Bull. Calif. Acad. **4**:402. 1887, GREENE writes that he found it frequent on cliffs toward the sea on the north side of Santa Cruz Isand, and reports it flowering as early as February and March. Miss ALICE EASTWOOD reported it for the first time from the mainland, and in Zoe **4**:286. 1893–4, she writes that JARED found it growing abundantly near the old wharf at Point Sal, Santa Barbara county.

CEANOTHUS IMPRESSUS Trel.—About twenty-four years ago JARED collected southwest of Guadalupe toward Point Sal, Santa Barbara county, California, a Ceanothus of which TRELEASE wrote in *Proc. Calif. Acad.* II. **1**:112. 1888:

> *C. impressus*, n. sp. Villous with short spreading hairs: leaves broadly elliptical to nearly orbicular, 6–8^{mm} long, loosely villous, especially on the veins below, the upper surface deeply furrowed over the midrib and several pairs of lateral nerves, the slightly glandular margin very revolute, appearing as if crenate: peduncles about 10^{mm} long, scaly toward the base; inflorescence subglobose, compact: fruit not seen.—Santa Barbara county, Cal.

About fifteen years later Mrs. IDA BLOCHMAN collected it again near the same place. While botanizing a few miles north of Surf station I found a Ceanothus (distributed under number 3870) which seems to answer well to the above diagnosis. Its range appears to be restricted to this coast, and it should be looked for on some of the northern Santa Barbara Islands. In Proc. Calif. Acad. II. **4**:202. 1894–5, Mrs. KATHERINE BRANDEGEE writes that in her opinion it appears to be nothing but a stocky southern form of *C. dentatus* T. & G. growing on unsheltered sandhills. In the same paragraph she states that *C. dentatus* in its typical form appears to be confined to the vicinity of Monterey. Still there are quite remarkable differences between the two forms or species, and to one observing them in the field they would not for one moment be taken for the same. *C. dentatus* at Monterey has not the dense prostrate habit. The leaves of *C. impressus* are broadly elliptical to nearly orbicular, while in *C. dentatus* they are oblong-cuneiform; furthermore, the branches of *C. impressus* are rigid and spinescent, while in *C. dentatus* they are flexible and not spinescent—a character also contrasting *C. thyrsiflorus* Esch. and *C. sorediatus* H. & A.

Malacothrix succulenta, n. sp.—Succulent maritime perennial herb, with long fleshy creeping and numerously branched stems forming dense mats: stem above the sand branching near the base or at least below the middle, 1–2^{cm} high, rarely erect but usually reclining, when young floccose especially on the concealed portion, soon becoming glabrous: lower leaves persistent after they become dry, linear-oblanceolate, sessile when mature, glabrous on both sides, 5^{cm} long, 8^{mm} across the widest part, obtusely rounded, rarely undulate or dentate along the upper margin: scapes gradually thickened at the apex, usually branching from a little below the middle, its bracts minute, weak and sub-flexuose: heads solitary, turbinate, 2^{cm} long, about that in width at the top: involucral bracts chiefly in one series, 10^{mm} long, thin, glabrous, linear, loosely imbricated, subtended by numerous smaller triangular bracts of the scape: flowers many, all with lemon-colored ligulate corolla: receptacle naked, flat: achene smooth, 1.5^{mm} long, with semi-truncate or short obtuse ends, bearing a soft silky white pappus whose bristles are finely scabrous and equally 6^{mm} in length: corolla 7^{mm} long, gradually tapering into the 4-toothed ligulate expansion, much exceeding the pistil, its tube 3^{mm} long and glabrous: stamens exserted; anthers linear, united, 3^{mm} long; filaments 5^{mm} long, distinct, thread-like style exceeding stamens, barely cleft.

Dunes and terraces about Surf, Santa Barbara county, California, May 1902. Type specimen, no. 3639, in Herb. Stanford University.

It is now just sixty-six years since NUTTALL first discovered on an island in San Diego Bay a Malacothrix which Torrey and GRAY described (Fl. N. Am. **2**:486. 1838-40) as *M. incana.* Fifty years later GREENE rediscovered it growing abundantly on San Miguel, the smallest and remotest of the Santa Barbara Islands; he also found it on the western extremity of Santa Cruz Island, a distance of 200 miles northwestward from its type locality. My plant from Surf is similar, but in my opinion is specifically distinct, though very closely related to *M. incana.*

Carduus maritima, n. sp.—Succulent maritime biennial or perennial, from strong thick tap roots: stems 1^{m} long, much branched from the base and up to the middle, giving the plant a rounded bushy appearance; branches covered with long white appressed hairs and terminating in 1–3 heads: leaves thick, felty, densely and thickly lanate pubescent, 1–2^{cm} long, the blade proper ovate in outline, the lower one-third abruptly narrowed, its base semi-auriculate, the entire margin irregularly and dentately lobed and beset with straight needle-pointed spines which are more numerous toward the base than on the coarse lobes of the blades: heads large, dull white, 5^{cm} long, nearly that in width, loosely corymbose: bracts many, imbricate, nearly equal in length; the exterior ones similar to the leaves in lobation, spinescence, and pubescence; the interior ones linear-lanceolate, sharply acuminate, the lower and inner surface wholly glabrous, finely spinescent on the margins above the middle: the dense bristly hairs of the receptacle not hispid, dark brown, 12^{mm} long: achene 6^{mm} long, flattened, narrowly obovoid or cuneate, brown and shining, usually somewhat curved: pappus bristles interlaced with fine secondary ones except at the apex, 2^{cm} long, dull white, attached as a whole to the apical rim of the achene: corolla tubular, 2.5^{cm} long, segments 4^{mm} long, the tube funnelform or slightly inflated immediately beneath the lobes: anthers united and pubescent, 7^{mm} long: stigma barely notched.

Surf, Santa Barbara county, California, May 1902. Type specimen, no. 3631, in Herb. Stanford University.

The habitat of this species is strictly saline and most probably it can be found on the islands and possibly in other localities along the coast. I found only a few plants on the most exposed dunes, on which they formed low spreading bushes not very dissimilar to the Russian thistle. Its low succulent halophytic habit, remarkable pubescence and peculiar lobation and spinescence of its leaves readily distinguish it from all other species of this genus.

Monardella crispa, n. sp.—A low strongly aromatic shrub, 3^{dm} high, the lower woody branches numerous, giving it a small dense bush-like appearance; younger branches lanate pubescent, older ones with thin coarsely and irregularly checked bark: leaves sparsely lanate pubescent, somewhat succulent, fascicled at regular intervals, more strongly punctiform on the dorsal surface, the larger ones $2–3^{cm}$ long and 1^{cm} wide, undulate or coarsely crisped along the margins below the rounded apex, oblong or narrowly oblanceolate with a long attenuate base; upper pair of leaves ovate to oblong, without the slenderly narrowed base: heads solitary upon the stems or branches or in a series of two or even three, sub-globose, $2–4^{cm}$ across, upon densely woolly scapes $2–5^{cm}$ long: bracts 10^{mm} long, apex acute or rounded, thin, purplish, the 3–7 nerves conspicuously ascending, the outer surface soft pubescent, almost equaling the calyces, the exterior ones elliptic to broadly oblanceolate, the interior ones narrower and a trifle shorter: flowers 18^{mm} long, upon pedicels 1^{mm} long: calyx tubular, 6^{mm} long, woolly pubescent, 14-nerved, the 5 acute teeth 1^{mm} long: corolla 13^{mm} long, light pink, obscurely bilabiate; upper lip broad, deeply emarginate; lower one divided into 3 ligulate segments; exterior corolla tube 4^{mm} long, exceeding the calyx, sparsely set with fine short recurved hairs: stamens 4, spreading and much exserted: style included, bearing a short-lobed stigma.

Surf, Santa Barbara county, California, May 1902. Type specimen, no. 3965, in Herb. Stanford University.

This mint is a maritime species, and at Surf is confined to the drifting sand beaches. Without much doubt it may also be found on some of the Santa Barbara Islands where the sea influence is strong.

Monardella robusta, n. sp.—Faintly aromatic, tall, woody, $1–2^{m}$ high, prostrate or supported by other undergrowth: stem almost scape-like below, with a few branches toward the top, covered with a thinly checked but not shredded bark; younger branches dark brown, sparsely pubescent, usually terminated by a solitary head though often bearing smaller axillary ones beneath them: leaves opposite, the larger ones 5.5^{cm} long including the 5^{mm} long petiole, 15^{mm} wide, lanceolate, margins involute, coriaceous, nerves radiating from the midrib and ascending, prominent beneath, sunken above, entire or obscurely crenately toothed, puberulent or only sparsely hirsute on dorsal surface, thickly white lanate pubescent beneath, sub-scarious; axillary leaves shorter and narrower, fascicled, without a distinct petiole: heads 2^{cm} or more across, less than that in height, solidly flowered, nearly sessile or pedunculate; the lower bracts shorter and broader, 8^{mm} long, broadly elliptic, acute or obtuse, ascendingly nerved mainly from the broad base, soft pubescent, especially upon outer surface: flowers short pedicellate: calyx tubular, 8^{mm} long, 14-nerved, terminated by 5 acute teeth 1^{mm} long: corolla at least 2^{cm} long, its tube exceeding the calyx teeth by 4^{mm}, scarcely bilabiate, lower segments 6^{mm} long, exterior of exserted tubular part set with fine retrorse hairs: stamens 4, exserted: style slender, mostly included, 2-notched.

Rattle Snake Canyon, a few miles back of Santa Barbara towards the Santa Ynez Mountains, Santa Barbara county, California, August 1902; rare, and only found in dense thickets of underbrush. Type specimen, no. 3728, in Herb. Stanford University.

Encelia actoni, n. sp.—Shrub 1^{m} high, moderately branched, forming rather unique individual bushes; wood soft; bark thin, smooth, grayish white, becoming finely checked and ultimately shredded: leaves not crowded, nor are the secondary ones fascicled, 3^{cm} long, 2^{cm} wide, ovate, acute, chiefly entire, 3-nerved at base, alternate, without stipules, cinereous pubescent, upon petioles 1^{cm} long: heads 3^{cm} in diameter, solitary upon long cinereously pubescent scapes barely bracteate below the middle: involucral bracts nearly of the same size, $7–10^{mm}$ long, $3–5^{mm}$ wide, imbricate in two or three series, hispidly pubescent and sub-glandular on the exterior, glabrous on the interior: ray flowers pubescent, tube bearing a pistil and gradually expanding into a truncate ligule 8^{mm} long, not numerous, with a sterile achene 4^{mm} long; ligule proper finely pubescent on the outer surface, light yellow, many-nerved; disk flowers perfect and fertile, subtended by bracts; these 10^{mm} long, strongly enfolding the achene, with a prominent midnerve besides the 10–14 lateral nerves terminating in an acute glandular pubescent apex whose edges are fimbriate: corolla tubular, equaling the achene, lower one-fourth constricted, terminating in rather acutely thickened recurved apical segments: stamens included; filaments 1^{mm} long; anthers 5^{mm} long, introrse, with triangular apex, and minutely sagittate base: style 2-cleft, stigmatic only upon the upper outer side of the lobes;

achene 5^{mm} long, much compressed, narrowly obovoid or cuneate, only the edges densely ciliate especially toward the apex.

Acton, Los Angeles county, California, June 1902. Type specimen, no. 3724, in Herb. Stanford University.

This interior species differs from the seacoast *E. californica* Nutt., and can at once be distinguished in the field by its conspicuous light grayish bark, its cinereous pubescence, its fewer and larger heads, and its individual habit.

Chrysopsis californica, n. sp.—Perennial, $4–6^{dm}$ high, from woody base: stem long silky pubescent, fastigiately branching, terminating in a subcorymbose inflorescence: leaves more or less fascicled, sessile, often clasping, the average length 2^{cm} and width 5^{mm}, though often much shorter or longer, granular surface covered with dense white silky pubescence, edges becoming involute: heads 2^{cm} broad, upon short leafy ascending peduncles: involucral bracts many, villous pubescent on exterior surface, linear or narrowly lanceolate, regularly imbricated in several series: receptacle naked: *ray flowers:* pappus 2-seriate; the upper of reddish-brown scabrous bristles 6^{mm} long, the lower lighter colored; minutely paleaceous, only 0.5^{mm} long: corolla 2^{cm} long, lower half tubular, upper expanded into a semi-obovate or oblanceolate ligule which is closely and minutely 3-toothed at apex; opposite this primary ligule is usually present a secondary one which is shorter, more linear and inserted upon its throat: *disk flowers:* pappus bristles in one series, 2^{mm} long: corolla glabrous and tubular, with rich yellow acute segments, 1.5^{mm} long: filaments short, separate, inserted upon a short thick base: style exserted and deeply cleft, the branches triangular acuminate and stigmatic only on exterior surface; achenes apparently all fertile, 4^{mm} long, short pubescent, slightly compressed or 4-costate.

Sandy soil near the beach, Gaviota, Santa Barbara county, California, May 1902. Type specimen, no. 4148, in Herb. Stanford University.

The plant is rare, and was collected at the same station where *Astragalus gaviotus* Elm. was discovered.

Deinandra simplex, n. sp.—Annual or at most biennial: stem brown, generally simple, chiefly branched toward the top, hispid pubescent; flowering branches ascending, leafy, the lower ones shortest, occasionally bearing subglomerate clusters below the terminal one: leaves ovate, lanceolate or linear-lanceolate, short hispid pubescent on both sides, more or less clasping at base, $1–5^{cm}$ long, the smaller ones entire, the larger ones remotely dentate: heads turbinate, 8^{mm} long, upon leafy bracteate peduncles: 5 involucral bracts 6^{mm} long, uniserial, narrowly oblanceolate, the apex sparsely hispid pubescent, acuminate: *ray flowers:* ligulate corollas rarely more than three to each head, the basal tubular part 1^{mm} long, ovate, papillose; the expanded wing broadly obovate, 5^{mm} long, nearly that in width, yellow, the apex bearing a narrow middle tooth: achenes without pappus, 2^{mm} long, obovate, brown or possibly black when mature, puberulent, triquetrous, tightly enclosed by the involucral bracts; style slenderly 2-cleft, stigmatic on the edges for the entire length: *disk flowers:* the 5 disk flowers separated from the ray series by 5 united bracts: achenes short and sterile, bearing a paleaceous pappus 1.5^{mm} long: corolla tubular, 4^{mm} long, bearing 5 yellowish teeth: filaments half as long as anthers, separately inserted upon the corolla; anthers 2^{mm} long, with constricted triangular apices: style cleft, the lobes entirely ciliate.

Quite plentiful in dry half sandy soil, Santa Barbara, Santa Barbara county, California, August 1902. Type specimen, no. 3839, in Herb. Stanford University.

Machaeranthera pinosa, n. sp.—Densely tufted perennial, 1.5^{dm} high: underground stems numerously branched, those above ground rather rigid, brown, with a short cinereous pubescence, usually divaricately 3-branched from a little above the middle, basal portion marked with ring-like scars caused by the early falling of the radical leaves: basal leaves dry and brittle, those above the middle of the stem $3–5^{cm}$ long, linear-oblanceolate, densely cinereous pubescent on both sides, usually conduplicate above the middle, sessile though the lower half is narrow and petiole-like, minutely dentate, the teeth terminating in short and sharp-pointed hyaline spinules; upper leaves bract-like, broadest below the middle: heads turbinate, 1^{cm} high, solitary or upon bracteate brown glandular pubescent peduncles 4^{cm} long: involucral bracts imbricate, very unequal, mostly linear, acutely pointed, the exposed surface glandular, the inner surface straw-colored or purplish-blue: corolla of ray flowers 22^{mm} long, tube minutely pubescent, 12^{mm} long, gradually expanding into the rich purple-blue broadly spatulate minutely 3-toothed ligule: pappus in one series, 12^{mm} long, scabrous, reddish-brown, very unequal: corolla of disk flowers 0.75^{mm} long: stamens with anthers 3^{mm} long and short filaments: style deeply cleft, the branches straight and with the entire dorsal surface stigmatic; immature achene 2^{mm} long, obovoid, finely pubescent.

Rather rare on the summit of Mt. Pinos, Ventura county, California, July 1902. Type specimen, no. 4145, in Herb. Stanford University.

This beautiful deep blue or purple-flowered Machaeranthera, like many other purely alpine plants, has the habit of apparently forcing its growth along crevices of rocky summits.

Chrysothamnus corymbosus, n. sp.—Shrubby, $0.5–1^{m}$ high, numerously branched, forming well rounded bushes; wood dry, soft, yellowish, with thin shredded bark: leaves on second year old branches of varying lengths, much shorter than on younger twigs, usually fascicled, soft pubescent on both sides, dry and becoming recurved; those on the upper branches mostly of the same length, $10–15^{cm}$ long, ascending, not fascicled, narrowly linear or oblanceolate, with a short sparse pubescence, the surface more or less glandular, obscurely punctiform: heads glomerated in rounded corymbs, $2–3^{cm}$ across, at ends of branches: peduncles 6^{mm} long or longer, they as well as the subtending bracts sparsely lanate pubescent, usually monocephalous: involucral bracts persistent, broad and mainly in two imbricate series; lower ones triangular, short and pubescent; upper ones 5^{mm} long, nearly glabrous and almost shining, broadly linear-obtuse, with narrow hyaline margins: heads about 7^{mm} high, cylindric or subturbinate, 10-flowered: ray flowers few, 8^{mm} long including the ciliate pubescent achene 2^{mm} long: pappus uniserial, 3^{mm} long, finely scabrous, whitish and copious: tubular part of the corolla shorter than the expanded portion, pubescent; ligule broadly elliptic, yellow, thin, apex much folding over, bluntly toothed: style cleft: corolla of fertile disk flowers tubular, 5^{mm} long, 5-segmented: filaments 3^{mm} long; anthers 2^{mm} long, linear, with triangularly constricted apices.

Near Lancaster, Los Angeles county, California, June 1902. Type specimen, no. 3668, in Herb. Stanford University.

During the middle or hottest part of the day this desert-loving plant gives off a very strong resinous odor.

Horkelia Rydbergii, n. sp.—Low prostrate perennial, forming dense mats: stems barely branching below the middle, the longer ones prostrate and ultimately erect or ascending, 2^{dm} long or less, branching above the middle and bearing few-flowered cymes: leaves clustered at the base, longer ones 6^{cm} long, covered with a silky-velvety pubescence, usually with a petiole 2^{cm} long; stipules 15^{mm} long, adnate and conduplicate, the interior surface quite smooth, terminating in a laciniate pubescent segment 5^{mm} long; those of the smaller cauline leaves broader, larger lobed, and nearly clasping the stem; leaflets of the lower leaves 8–12 pairs, densely silky pubescent on both sides, 5^{mm} long, fully that in width, sessile, merely 3–5-pointed, the lower one or two pairs somewhat distant, those above the middle more or less crowded and diminishing in size toward the apex: inflorescence loosely cymose: flowers short or longer pedunculate, subtended by leaf-like bracts: hypanthium cup-shaped, 5^{mm} broad and 5^{mm} high including the teeth nearly 2^{mm} long; calyx bracts in two series of 5 segments each, the outer shorter and narrower, the inner 3^{mm} long and acute: stamens 10; filaments acuminate, nearly glabrous, 2^{mm} long and slightly unequal in length, petaloid in color, flattened especially toward the base; those opposite the petals much shorter than the others which are exceeded by the longer calyx segments; anthers 1^{mm} long, introrse and basifixed: petals alternating with the outer series of stamens, cuneate or oblong to obovate, $3–4^{mm}$ long, 2^{mm} wide, barely exceeding the longer of the calyx segments; between the base of filaments and receptacle proper a narrow dark-brown smooth circular band: receptacle ciliate, ovoid to conical: pistils smooth, numerous, sessile; style 3^{mm} long, erect, straight, constricted or articulated to the ovary; achenes 1^{mm} long, brown, semi-recurved.

Dry gravelly flat near Griffin's postoffice, Ventura county, California, July 1902. Type specimen, no. 3971, in Herb. Stanford University. Named in honor of P. A. RYDBERG.

Castilleia gleasoni, n. sp.—Perennial, $2–4^{dm}$ high, from a hollow thick dwarfed woody base: stems mainly from the base, branched at the middle, obscurely ridged or striate, clothed with a soft pilose pubescence which conceals the more or less dry glandular surface; branches usually clustered from the distal ends of the abruptly terminated stems, striate, similarly pubescent and glandular, bearing erect or sub-flexuose spicate racemes 1^{cm} long: leaves many but not crowded, all cauline and equally distributed; larger ones 4.5^{cm} long, 12^{cm} wide, 3–5-nerved, the pubescence on both sides concealing the numerous fine sessile glands, the upper one-third divided into 3 lobes with the middle one usually broader and longer; smaller leaves linear to lanceolate and entire; axillary leaves few, short and inconspicuous, not fascicled: average bract 2^{cm} long, strongly 3-nerved, divided to below the middle into 3 strap-like purple-red entire segments; these are obtuse or rounded, glandular and pubescent especially on the outer surface above the middle: calyx tubular, 15^{mm} long, 4-nerved, glandular pubescent, the bilabiate part 5^{mm} long, each bearing acute teeth 2^{mm} long; galea 2^{cm} long, slightly curved, slit half way down, apex narrowly truncate or faintly 3-toothed, exterior apical section glandular, middle part pubescent, glabrous at base; lower lip represented merely by 3 broad and short lobe vestiges: stamens 4, the two inner ones slightly shorter; filaments separate, thread-like, inserted upon the corolla tube beneath the throat; anthers approximate, included by the galea, the two cells unequal in length, united above the middle, distinct below: style slender, gradually enlarging toward the apex, exceeding the galea by 2^{mm}, bearing a 2-lobed flattened stigma: capsule ascending, 15^{mm} long, ovoid to lanceoloid, slightly dorsiventrally compressed, acute or acuminate.

Cliffs and in rock crevices on the summit of Mt. Gleason, near Acton, Los Angeles county, California, June 1902. Type specimen, no. 3659, in Herb. Stanford University.

This "paint-brush" or "red-hot-poker," as I have heard it called, is neither the early flowering *C. foliolosa* H. & A. of the seacoast nor the glandular southern *C. Martini* Abrams.

Eriogonum baratum, n. sp.—Annual, $3–5^{dm}$ high, erect, mostly single: stems glaucescent, purplish at base, straight and erect, one-third the height of the plant, terete, of the same thickness throughout; branches 1–5 at a whorl, smooth and also glaucescent, ascending, ultimately widely branching, subtended by 3 acuminate smooth and coriaceous bracts $1–2^{mm}$ long: leaves all radical, longer ones 3^{cm} long, including the woolly petiole 2^{cm} long which is perceptibly expanded at base; blade proper 1^{cm} long, ovate to broadly elliptic or rotund, semi-cordate at base, upper surface glandular and woolly pubescent, lower deeply and densely lanate pubescent: flowers mostly axillary or terminal, always solitary upon slender purple-red drooping peduncles 1^{cm} long: involucre glaucous, often minutely glandular, coriaceous, $2–3^{mm}$ long, bearing five hyaline-margined obtuse teeth from one-fourth to one-third the entire length of the involucre: pistillate flowers little protruding, the stalks apparently articulated, 2.5^{mm} long, commonly 10, becoming deflexed, intermixed with ciliate bristles 2^{mm} long: corolla 2^{mm} long, white or pinkish, petals 6, in two whorls; outer broad elliptic or more or less rectangular in shape, with bases clawed; inner shorter, narrower and obovate: staminate flowers fewer, sessile or sub-sessile, intermixed or more or less in the central region, also subtended by ciliate bristles, 1^{mm} long, petals smaller though similar in shape and equal in number: the 10 stamens included, upon slender filaments, bearing small yellow anthers: ovary smooth, elongated, 2^{mm} long, surrounded by numerous sterile filaments; styles 3, spreading, terminated by small capitate stigmas; achene sub-terete and spindle-shaped, purplish, smooth.

These hills contain borax mines, and since this plant is strictly confined to this region it would seem that the salt is a necessary constituent for it.

On very hot barren exposed round-topped hills between Griffin's postoffice and Mt. Pinos, Ventura county, California, July 1902. Type specimen, no. 3593, in Herb. Stanford University.

Lupinus glareosus, n. sp.—An almost acaulescent annual, $3–5^{dm}$ high, somewhat succulent though readily curing: stem very short, rather thick and hollow, terminated by a spicate inflorescence; branches with a soft short brownish pubescence, chiefly from the stem, the outer ones curved upward from the middle: leaves clustered at the point of branching, erect or ascending, upon finely pubescent petioles $1–5^{cm}$ long, with broadened bases subtended by laciniate adnate stipules; leaflets 10, sessile, only sparsely pubescent on both sides, soft and fleshy, obovate, on an average 15^{mm} long and 5^{mm} wide, the older ones with a very peculiar dead scarious upper margin: spikes cylindrical, 3^{cm} in diameter, $10–15^{cm}$ long, erect and exceeding the leaves, upon pedunculate scapes: flowers in whorls of 5, upon short pubescent pedicels, subtended by acuminate similarly pubescent bracts which slightly exceed it: calyx cup-shaped at base, bilabiate, pubescent; lower lip rather broad, 7^{mm} long, obtuse, 3-nerved; upper one thinner, 3^{mm} long, notched; banner broadly elliptic, 12^{mm} long, finely nerved and entirely glabrous; lateral wings equaling the length of the banner, nearly 5^{mm} in width throughout, basal margins ciliate and abruptly terminating into a short narrow claw; keel at least 12^{mm} long, falcate, with a constricted ring-like portion near the base and with the margin of the aperture densely ciliate: stamens of two kinds; the 5 longer ones bearing small anthers, the shorter ones with linear anthers: style falcate, the stigmatic portion barely exceeding the keel; ovary covered with long rubiginous hairs; pod equally tapering to both ends, 1^{cm} long, 2-seeded, silky pubescent, terminated by a persistent much recurved style; seeds subsessile, smooth, compressed.

Griffin's postoffice, Ventura county, California, July, 1902. Type specimen, no. 3588, in Herb. Stanford University.

It is wholly confined to dry gravelly soil along water courses, hence its name.

Astragalus gaviotus, n. sp.—An erect densely tufted perennial $3–5^{dm}$ high: stems many from the woody base, branching above the middle, cinereous pubescent: lower leaves falling early, becoming recurved, 10^{cm} long, subtended by distinct acute triangular stipules 5^{mm} in length; leaflets extending nearly to the base, 7–15 remote and scattered pairs, $15–25^{mm}$ long, 5^{mm} wide, the rachis usually terminated by a solitary leaflet; lower ones strigulose and short-petioled, the larger and older ones broadly obtuse or truncate, linear to narrowly elliptic: racemose inflorescence $2–3^{cm}$ long, terminating the rigid striate and strigulose peduncles 10^{cm} long, barely exceeding the leaves: pedicels 5^{mm} long, ascending, strigose, subtended by shorter long acuminate strigulose bracts: calyx inflated, cup-shaped, 3^{mm} long, apex apiculate but often more or less toothed, barely pubescent with a mixture of black and whitish hairs: corolla, stamens, and pistils not seen: pod persistent, compressed, spreading or becoming pendent upon pubescent usually recurved pedicels 8^{mm} long, dull or yellowish-white, $6–10^{mm}$ wide, $20–28^{mm}$ long, gradually and acuminately tapering to both ends though more often widest above the middle, apex terminated by a short blunt cusp, the sides obscurely but finely reticulated and under a lens only sparsely hairy, straighter along the dorsal edge; seeds commonly 6, slenderly stipitate, flattened, smooth, brown, semi-reniform, strongly reticulated.

Sandy soil not distant from the beach at Gaviota, Santa Barbara county, California, May 1902. Type specimen, no. 3759, in Herb. Stanford University.

This plant is usually referred to *A. filipes* Torr., which however has a more northern and interior range and a more slender habit of branching.

ASTRAGALUS WHITNEYI **pinosus,** n. var.—A handsomely tufted and spreading variety of the alpine species, with many branches from a perennial root; branches as well as leaves subtended by short, concrete, and scarious bracts or stipules: leaves ascending, usually 4^{cm} long, the lower one-fourth petiolate; leaflets glabrous or sparsely strigulose, $6–10^{m}$ long, 7–9 pairs though the lower ones are much scattering, the terminal either in pairs or solitary by abortion, subsessile, mostly conduplicate in the dried specimens, linear to lanceolate to oblanceolate: racemes terminal, 2^{cm} long, upon peduncles 4^{cm} long: calyx subinflated, 4^{mm} long, terminated by 5 short but narrowly sharp pointed teeth, short-pediceled, pubescence of black and whitish hairs: pod 3^{cm} long, obovoid inflated, narrowed toward the base but not stipitate, reflexed, glabrous, reticulations prominent, beautifully mottled with a purple or reddish-violet, falling rather early.

Summit of Mt. Pinos, Ventura county, California, July 1902. Type specimen, no. 4005, in Herb. Stanford University.

This variety is chiefly distinguished from the typical form by its scarious stipules, more linear leaflets, and in not being stringulose.

HERBARIUM OF STANFORD UNIVERSITY,
September 1903.